

WHAT IS CLAIMED IS:

1. A papermaker's fabric comprising:
a top layer of cross-machine direction (CD) weft yarns; the top layer having at least two different diameter, size, or shape weft yarns in
5 a same contour to produce a plane difference in the forming surface of the fabric;
a bottom layer of CD weft yarns; and
a system of machine-direction (MD) warp yarns interwoven with the top and bottom layers of CD weft yarns;
10 wherein the top layer produces a forming surface impression with a preferred pocket marking pattern.
2. The papermaker's fabric according to claim 1, wherein the top layer of CD weft yarns forms a forming side of the fabric and the bottom layer
15 of CD weft yarns forms a wear side of the fabric.
3. The papermaker's fabric according to claim 1, wherein the fabric is a forming fabric for producing tissue, napkin, and towel paper.
- 20 4. The papermaker's fabric according to claim 1, wherein the plane difference in the top layer generates bulk, cross directional tensile, absorbency, and softness in a sheet of paper formed by the fabric.
- 25 5. The papermaker's fabric according to claim 1, wherein each MD yarn weaves in the top layer over a small diameter CD weft yarn, under an adjacent large diameter CD weft yarn and the next small diameter CD weft yarn, and over the next large diameter CD weft yarn before crossing to weave in pattern with the bottom layer.
- 30 6. The papermaker's fabric according to claim 1, wherein the MD yarns and CD weft yarns are monofilament yarns.

7. The papermaker's fabric according to claim 1, wherein at least some of the MD yarns are one of polyester yarns, polyamide yarns, or other polymeric yarns.
- 5 8. The papermaker's fabric according to claim 1, wherein at least some of the CD weft yarns are one of polyester yarns, polyamide yarns, or other polymeric yarns.
- 10 9. The papermaker's fabric according to claim 1, wherein at least some of the yarns are one of hard or soft material yarns.
- 15 10. The papermaker's fabric according to claim 1, wherein the MD warp yarns and/or CD weft yarns have a circular cross-sectional shape, a rectangular cross-sectional shape or a non-round cross-sectional shape.
11. The papermaker's fabric according to claim 10, wherein the rectangular cross-sectional shape yarns or non-round cross-sectional shape yarns are twisted.
- 20 12. The papermaker's fabric according to claim 1, wherein the fabric is a double layer or double layer support shute fabric.
- 25 13. The papermaker's fabric according to claim 1, further comprising a middle layer of CD weft yarns between the top layer and bottom layer and being interwoven with the system of MD yarns.
14. The papermaker's fabric according to claim 1, wherein the at least two different diameter, size, or shape weft yarns alternate in the top layer.
- 30 15. The papermaker's fabric according to claim 13, wherein the CD weft yarns in the middle layer are vertically stacked with the CD weft yarns in the bottom layer.

16. The papermaker's fabric according to claim 15, wherein the fabric is a triple stacked shute (TSS) fabric.

5 17. A papermaker's fabric comprising:
a top layer comprised of weft yarns of at least two different
diameters, sizes, or shapes in a same contour interwoven with a system
of warp yarns; and
a bottom layer of weft yarns interwoven with the system of warp
10 yarns;
the weft yarns and warp yarns defining pocket areas in the
surface of the top layer;
the top layer having at least three levels produced by plane
differences between a largest diameter, size, or shape weft yarn and the
15 warp yarns; the levels defining pocket depths corresponding to the
pocket areas.

18. The papermaker's fabric according to claim 17, wherein the top
layer forms a forming side of the fabric and the bottom layer forms a wear side
20 of the fabric.

19. The papermaker's fabric according to claim 17, wherein the
fabric is a forming fabric for producing tissue, napkin, and towel paper.

25 20. The papermaker's fabric according to claim 17, wherein the
pocket areas and corresponding pocket depths in the top layer generates bulk,
cross directional tensile, absorbency, and softness in a sheet of paper formed by
the fabric.

30 21. The papermaker's fabric according to claim 17, wherein each
pocket area includes at least two predominant warp yarns at the same level.

22. The papermaker's fabric according to claim 17, wherein the weft yarns and warp yarns are monofilaments.

5 23. The papermaker's fabric according to claim 17, wherein the weft yarns and warp yarns are one of polyester yarns, polyamide yarns, or other polymeric yarns.

10 24. The papermaker's fabric according to claim 17, wherein at least some of the yarns are one of hard or soft material yarns.

25. The papermaker's fabric according to claim 17, wherein the weft yarns and warp yarns have a circular cross-sectional shape, a rectangular cross-sectional shape or a non-round cross-sectional shape.

15 26. The papermaker's fabric according to claim 25, wherein the rectangular cross-sectional shape yarns or non-round cross-sectional shape yarns are twisted.

20 27. The papermaker's fabric according to claim 17, further comprising a middle layer of weft yarns between the top layer and bottom layer and being interwoven with the system of warp yarns.

25 28. A papermaker's fabric comprising:
a top layer comprised of weft yarns of at least three different diameters, sizes, or shapes at a same contour interwoven with a system of warp yarns;
a bottom layer of weft yarns interwoven with the system of warp yarns; and
30 binder weft yarns, binder warp yarns, or integral warp or weft binders for binding the top layer and bottom layer together to form the fabric;

the weft yarns having the larger two diameters, sizes, or shapes and the warp yarns defining macro-pocket areas in the surface of the top layer;

5 the weft yarns having the smallest diameter, the binder weft yarns, and the warp yarns defining micro-pocket areas in the surface of the top layer;

10 the top layer having at least three levels produced by plane differences between the largest diameter weft yarns and the warp yarns; the levels defining pocket depths corresponding to the macro-pocket areas and micro-pocket areas.

15 29. The papermaker's fabric according to claim 28, wherein the top layer forms a forming side of the fabric and the bottom layer forms a wear side of the fabric.

30. The papermaker's fabric according to claim 28, wherein the fabric is a forming fabric for producing tissue, napkin, and towel paper.

20 31. The papermaker's fabric according to claim 28, wherein the macro-pocket areas and micro-pocket areas in the top layer combine to generate bulk, cross directional tensile, absorbency, and softness in a sheet of paper formed by the fabric.

25 32. The papermaker's fabric according to claim 28, wherein each pocket area includes at least two predominant warp yarns at the same level.

33. The papermaker's fabric according to claim 28, wherein the weft yarns, warp yarns, and binder yarns are monofilaments.

30 34. The papermaker's fabric according to claim 28, wherein the weft yarns and warp yarns have a circular cross-sectional shape, a rectangular cross-sectional shape or a non-round cross-sectional shape.

35. The papermaker's fabric according to claim 34, wherein the rectangular cross-sectional shape yarns or non-round cross-sectional shape yarns are twisted.

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36. The papermaker's fabric according to claim 28, further comprising a middle layer of weft yarns between the top layer and bottom layer and being interwoven with the system of warp yarns.

10 37. The papermaker's fabric according to claim 28, wherein at least some of the CD weft yarns are one of polyester yarns, polyamide yarns, or other polymeric yarns.

15 38. The papermaker's fabric according to claim 28, wherein at least some of the yarns are one of hard or soft material yarns.